

Claims for the Patent

5 **1. (Amended):** Communication model characterized in that whether reachability to a destination communication node (4100) is true or false is determined by comparing the mapped image of a pair consisting of a static identifier and dynamically assigned network address that indicate the destination communication node (4100) in a mapping notification system (1000) and the real image of the pair consisting of a static identifier and dynamically assigned network address in a destination communication node (4100),
10 in a store-and-forward network where host reachability is obtained by association of static identifier and dynamically assigned network address.

15 **2. (Amended):** Communication model according to Claim 1 above that is characterized in that a procedure by which the compared elements in the said communication model is known an originator communication node (2000 or 5300) is executed in the following sequence:

- (1) The originator communication node (2000 or 5300) performs name query to a mapping notification system (1000), using a static identifier of a destination communication node (4100) as a key.
- 20 (2) In response to the name query, the mapping notification system (1000) performs name resolution, returning a dynamically assigned network address of the destination communication node (4100).
- (3) The originator communication node (2000 or 5300) sends a sign to the said dynamically assigned network address, merely requesting the destination
25 communication node (4100) to return a response to the originator communication node (2000 or 5300).
- (4) The destination communication node (4100) sends a countersign to the originator communication node (2000 or 5300), that is, it sends a new carrier signal carrying the reply that should be made.

30 **3. (Amended):** Communication model according to Claim 1 above that is characterized in that a signal is used to send information that makes an originator communication node (2000 or 5300) confirm the said host reachability and that is sent from a destination communication node (4100) to the originator communication node
35 (2000 or 5300).

40 **4. (Amended):** Communication model according to Claim 3 above that is characterized in that the information that makes an originator communication node (2000 or 5300) confirm the said host reachability is a reply that should be made by a destination communication node (4100) and in that a signal is used to send the said information.

5. **(Amended):** Communication model according to Claim 3 above that is characterized in that the information that makes an originator communication node (2000 or 5300) confirm reachability is a reply that should be made by a destination communication node (4100) and additional information and in that a signal is used to send the said information.

6. **(Amended):** Carrier signal with function of carrying information between an originator communication node (2000 or 5300) and a destination communication node (4100) in a store-and-forward network consisting of the originator communication node (2000 or 5300), destination communication node (4100), and a mapping notification system (1000), and where host reachability is obtained by association of a static identifier and dynamically assigned network address. Carrier signal carrying a reply that should be made when the destination communication node (4100) responds to the response request from the originator communication node (2000 or 5300).

7. **(Amended):** Carrier signal according to Claim 6 above that is characterized by carrying additional information in addition to a reply that should be made.

8. **(Amended):** Reachability confirmation method by which an originator communication node (2000 or 5300) is made to confirm reachability to a destination communication node (4100) in a store-and-forward network consisting of the originator communication node (2000 or 5300), destination communication node (4100), and a mapping notification system (1000), and where host reachability is obtained by association of a static identifier and dynamically assigned network address. Reachability confirmation method characterized in that arbitrary information is stored at the mapping notification system (1000) as the information used when making the originator communication node (2000 or 5300) confirm reachability to the destination communication node (4100) and in that whether reachability to the destination communication node (4100) is true or false is determined by performing a given communication between the originator communication node (2000 or 5300) and the destination communication node (4100) and then by comparing a reply that the destination communication node (4100) made to the originator communication node (2000 or 5300) and the said stored arbitrary information.

9. **(Amended):** Reachability confirmation method according to Claim 8 above that is characterized in that the said arbitrary information is a static identifier at a destination communication node (4100).

10. **(Amended):** Reachability confirmation method according to Claim 8 above that is characterized in that the said arbitrary information is every character string replaced with a static identifier that an originator communication node (2000 or 5300) queries when making a communication node discover itself as the destination communication node

(4100).

11. **(Amended):** Reachability confirmation method according to Claim 8 above that is characterized in that the said arbitrary information is the translation rule used by
5 translating a static identifier that an originator communication node (2000 or 5300) queries when making the communication node discover itself as a destination communication node (4100).

12. **(Amended):** Reachability confirmation method according to Claim 8 above that is
10 characterized in that an originator communication node (2000 or 5300) is made to confirm that a destination communication node (4100) is the true one as follows: arbitrary information is stored at a storage device of the destination communication node (4100) as a reply that should be made, and then the said stored information is read from
15 the said storage device for communication using a previously agreed method, and then returns a countersign including the said information as a minimum.

13. **(Amended):** Reachability confirmation method according to Claim 8 above that is characterized in that a mapping notification system (1000) is selected from among
20 multiple ones (1000) that manage a static identifier of a destination communication node (4100) and then forward name query is performed to the mapping notification system (1000), and then the dynamically assigned network address of the destination communication node (4100) is obtained by switching among different mapping
notification systems for each destination communication node (4100) referenced, and then the said given communication is performed to the destination communication node
25 (4100) by using the said obtained dynamically assigned network address.

14. **(Amended):** Reachability confirmation method according to any one of Claims 8
to 13 above that is characterized in that whether reachability to a destination
communication node (4100) is true or false is verified by conducting the reachability
30 confirmation method according to any one of Claims 8 to 13 above again after the lapse of a given time interval when confirmation of reachability to the destination communication node (4100) fails.

15. **(Amended):** Reachability confirmation method according to any one of Claims 8
35 to 14 above that is characterized in that an originator communication node (2000 or 5300) conducts the reachability confirmation method in place of a terminal not having the reachability confirmation function.

16. **(Amended):** Reachability confirmation method according to any one of Claims 8
40 to 14 above that is characterized in that a further requirement is satisfied that the result of the said reachability confirmation is notified to at least either a given target person or public.

17. **(Amended):** Reachability confirmation method according to any one of Claims 8 to 16 above that is characterized in that an originator communication node (2000 or 5300) receives a reachability confirmation request for a destination communication node (4100) by a terminal not having the reachability confirmation function, and then the originator communication node (2000 or 5300) confirms whether reachability to the destination communication node (4100) is true or false, and then the originator communication node (2000 or 5300) notifies the result of the confirmation to the said terminal not having the reachability confirmation function.

18. **(Amended):** Reachability confirmation method according to Claim 17 above that is characterized in that when notifying the result of reachability confirmation to a terminal not having the reachability confirmation function, the time when normal access can be performed is included in the said notification, predicting the time the said terminal is affected by cache.

19. **(Amended):** Reachability confirmation method according to any one of Claims 8 to 14 above that is characterized in that a destination communication node (4100) whose address changes dynamically is managed by confirming reachability to the destination communication node (4100) before performing network management that uses SNMP, and when the reachability confirm succeeds, the dynamically assigned network address of the destination communication node (4100) is delivered to network management that uses SNMP.

20. **(Amended):** Reachability confirmation method according to any one of Claims 8 to 14 above that is characterized in that when reachability confirmation detects that a destination communication node (4100) is not present, a mapping notification system is reconfigured to not notify the association of static identifier and dynamically assigned network address of the destination communication node (4100).

21. **(Amended):** Reachability confirmation method according to Claim 20 above that is characterized in that when reachability confirmation detects that a destination communication node (4100) is not present, the resource record concerning the destination communication node (4100) is deleted at the DNS server that manages the domain name to which the destination communication node (4100) belongs.

22. **(Amended):** Reachability confirmation method according to any one of Claims 8 to 14 above that is characterized in that the static identifier indicating an originator communication node (2000 or 5300) is notified to the store-and-forward network.

23. **(Amended):** Reachability confirmation method according to Claim 22 above that is characterized in that closed connection is performed.

24. **(Amended):** Reachability confirmation method according to any one of Claims 8 to 14 above that is characterized in that the address of a destination communication node (4100) whose reachability confirmation succeeds is stored at an originator communication node (2000 or 5300) to omit the name resolution process of a mapping notification system (1000), and thus to reduce traffic of the mapping notification system (1000).

25. **(Amended):** Program product that is characterized in that the result of the reachability confirmation performed using the reachability confirmation method according to any one of Claims 8 to 24 above is used as input.

26. **(Amended):** Program product that is characterized in that the reachability confirmation method according to any one of Claims 8 to 24 above is executed by either a computer or network connection equipment.

27. **(Amended):** Media that is characterized in that it can be read by a computer and it stores the program product according to any one of Claims 24 to 25 above.

28. **(Amended):** Communication node that is either a computer or network connection equipment; and that has a means to set at least a sign for each destination communication node (4100), and to also set a reply that ought to be made, when the reply is not a static identifier itself indicating the said destination communication node (4100), and to send the said sign to the said destination communication node (4100); has a means to receive a countersign returned by the said destination communication node (4100); has a means to compare a reply that should be made carried by the said received countersign and the said set reply that ought to be made; and that confirms whether reachability to the destination communication node (4100) is true or false based on whether the result of the comparison is true or false.

29. **(Amended):** Communication node according to Claim 28 above that is characterized in that one mapping notification system (1000) is selected from among multiple systems (1000) that manage the static identifier used by a destination communication node (4100), forward name query is performed, the dynamically assigned network address of the said destination communication node (4100) is obtained, and the said obtained dynamically assigned network address is used to communicate to the destination communication node (4100).

30. **(Amended):** Communication node according to any one of Claims 28 to 29 above that is characterized in that when reachability confirmation to a destination communication node (4100) fails, reachability confirmation is performed again after the lapse of a given time interval, to verify whether or not the correct destination

communication node (4100) is reached.

5 **31. (Amended):** Communication node according to any one of Claims 28 to 30 above that is characterized in that the said reachability is confirmed in response to a request from a communication node used by a general user.

10 **32. (Amended):** Communication node according to any one of Claims 28 to 31 above that is characterized in that the result of the said reachability confirmation is notified to at least either a given target person or the public.

15 **33. (Amended):** Communication node according to any one of Claims 28 to 32 above that is characterized in that when a reachability confirmation request for a destination communication node (4100) is received from a terminal not having the reachability confirmation function, it is confirmed whether reachability to the destination communication node (4100) is true or false, and then the result of the reachability confirmation is notified to the said terminal not having the reachability confirmation function.

20 **34. (Amended):** Communication node according to Claim 33 above that is characterized in that when notifying the result of reachability confirmation to the terminal not having the reachability confirmation function, the time when normal access can be performed is included in the said notification, predicting the time when the said terminal is affected by cache.

25 **35. (Amended):** Communication node according to any one of Claims 28 to 32 above that is characterized in that reachability confirmation is connected to the subsequent network management that uses SNMP; in other words, the dynamically assigned network address of a destination communication node (4100) whose reachability is confirmed is delivered to the said network management, to manage the destination communication node (4100) whose address changes dynamically.

30 **36. (Amended):** Communication node of a mapping notification system (1000) that is characterized in that when reachability confirmation detects that a destination communication node (4100) is not present on the network, a mapping notification system is reconfigured to not notify the mapped image, or the pair consisting of a static identifier and dynamically assigned network address of the destination communication node (4100).

35 **37. (Amended):** Communication node of a mapping notification system (1000) according to Claim 36 that is characterized in that when reachability confirmation detects that a destination communication node (4100) is not present on the network, the resource record concerning the destination communication node (4100) is deleted at the

DNS server that manages the domain name to which the destination communication node (4100) belongs.

5 **38. (Amended):** Communication node according to any one of Claims 28 to 30; the communication node receives a countersign carrying the static identifier that indicates an originator communication node (2000 or 5300) in the store-and-forward network.

10 **39. (Amended):** Communication node according to Claim 38; the communication node only provides a given service to the communication node that notifies the static identifier that indicates an originator communication node (2000 or 5300), to the store-and-forward network set in advance.

15 **40. (Amended):** Communication node according to any one of Claims 28 to 30; the communication node omits the name resolution process of a mapping notification system (1000) by storing the address of a destination communication node (4100) whose reachability confirmation succeeds.

20 **41. (Amended):** Communication node according to any one of Claims 28 to 40 that is characterized in that its function is shared by multiple devices.

25 **42. (Amended):** Program product executed by either a computer or network connection equipment at the communication node according to any one of Claims 28 to 40 above.

30 **43. (Amended):** Media that is characterized in that it can be read by a computer and stores the program product according to any one of Claims 41 to 42 above.

35 **44. (Amended):** Communication node that is either computer or network connection equipment in a store-and-forward network that consists of an originator communication node (2000 or 5300), destination communication node (4100), and mapping notification system (1000), and where host reachability is obtained by association of a static identifier and dynamically assigned network address; Communication node whose address is assigned dynamically or communication node that is integrated with the said communication node and that is referenced from an external network; Communication node that is characterized in that it is configured in the following manner: arbitrary information used when the originator communication node (2000 or 5300) queries the mapping notification system (1000) about the destination communication node (4100) is stored at the storage device of the said communication node as the reply that should be made, and then the said stored information is read from the said storage device either for
40 a sign or for communication that uses the previously agreed method, and then either a countersign including the said information as a minimum or a response to the communication that uses the previously agreed method.

45. (Amended): Communication node according to Claim 44 that is characterized in that the stored reply that should be made is a static identifier used to make the communication node discover itself as the destination communication node (4100).

46. (Amended): Communication node according to Claim 44 that is characterized in that it is configured in the following manner: the stored reply that should be made is set as any character string with which a static identifier is replaced that is used when an originator communication node (2000 or 5300) queries a mapping notification system (1000) regarding a destination communication node (4100); and then the said string is stored at the storage device of the said communication node; and then the said stored string is read from the said storage device when a communication request to a given port is received; and then a reply including the said string as a minimum is sent.

47. (Amended): Communication node according to Claim 44 that is characterized in that it is configured as follows: the stored reply that should be made is read, and then a string including a string translated based on the translation rule as a minimum is sent as a reply.

48. (Amended): Communication node according to Claim 45 that is characterized in that it is configured as follows: the host name (FQDN) that is set at a center-side mapping notification system (1000) updated dynamically by dynamic DNS is set as a readable string read for the said communication node; and then the said string is stored at the storage device of the said communication node; and then the said stored string is read from the said storage device when a communication request to a given port is received; and then a character string including the said string as a minimum is sent as a reply.

49. (Amended): Communication node according to any one of Claims 44 to 48 that is characterized in that it is configured as follows: in addition to given waiting ports, at least ports for changing the setting of the said communication node or well-known ports for web service for general browsing are provided.

50. (Amended): Communication node according to any one of Claims 42 to 49 that is characterized in that a carrier signal carrying the reply that should be made is sent in response to a sign to allow an originator communication node (2000 or 5300) to confirm reachability to the destination communication node.

51. (Amended): Program product implemented at either a computer or network connection equipment as a function of the communication node according to any one of Claims 44 to 50 above.

52. (Added): Media that is characterized in that it can be read and stores the program product according to Claim 51 above.